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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/272,331	03/19/1999	HIROKI ENDO	SON-1508	5505

7590 12/16/2003

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EXAMINER

TILLERY, RASHAWN N

ART UNIT	PAPER NUMBER
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2612

DATE MAILED: 12/16/2003

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Paper No. 15

Application Number: 09/272,331
Filing Date: March 19, 1999
Appellant(s): ENDO ET AL.

Ronald P. Kananen
For Appellant

EXAMINER'S ANSWER

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

(6) *Issues*

The appellant's statement of the issues in the brief is substantially correct. The changes are as follows:

Appellant addresses the 102(b) rejection of claims 1-2, 4, 6-7 and 9-16 as being improper. The examiner notes that in an effort to expedite prosecution of the application, in the Advisory Action dated September 10, 2003, Appellant's amendment was agreed to be entered for purposes of appeal. In the amendment, Appellant

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canceled a portion of claim 3 ("and third colors") and put the subject matter of claim 3 into claim 1 ("wherein the filter layer of a third color is made from a dye containing photoresist."). Claim 3 was rejected under 103(a) in the Final Office Action dated May 5, 2003. In response to Appellant's amendment, the examiner advised Appellant on how the claims would be addressed for purposes of Appeal. The examiner stated, in the Advisory Action "that Needham [the secondary reference used to reject dependent claims 3, 8 and 17] additionally teaches advantages for using one photoresist as opposed to another." Therefore, because the examiner advised Appellant on how the claims would be addressed for purposes of Appeal, the examiner has replaced the 102 rejection of claims 1-2, 4, 6-7 and 9-16 with a 103 rejection. This is not considered a new ground of rejection.

(7) Grouping of Claims

Appellant's brief includes a statement that claims 1-17 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

4,876,167	SNOW et al.	10-1989
5,140,396	NEEDHAM et al.	8-1992
5,805,966	YAMADA	5-1997
EP726503A2	UGAI et al.	8-1996

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-4 and 6-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Snow in view of Needham et al (US5140396).

Snow teaches forming a color filter array on the surface of CCD semiconductor image sensors. The color filter array is made up of primary filters red, green and blue, each of which is produced by two subtractive primary dyes- cyan, magenta and yellow (see col. 27, lines 14-68 and col. 28, lines 1-66).

Regarding claims 1 and 12, Snow discloses, in figures 1 and 2, a method of producing a color filter, comprising the steps of:

forming a filter layer of a second color (yellow, magenta or cyan) in a substrate region in which a filter element of a first color (red, green or blue) is to be formed; and

overlapping a filter of a third color (yellow, magenta or cyan) different from the second color on the filter layer of the second color and on the substrate (for example, in figure 2, yellow is overlapping both magenta and cyan);

wherein two overlapping filter layers form the filter element (for example, in figure 2, yellow is overlapping magenta to form a green filter element).

Snow discloses, in the background of the invention, that a common approach to forming color filter arrays is to blend a mordant with a negative-working photoresist. Snow does not expressly disclose filter layers made from a dye containing photoresist.

Needham teaches forming a color filter array on the surface of CCD semiconductor image sensors. Needham further reveals that it is well known in the art to either utilize a negative or positive photoresist for forming a filter on a substrate (see col. 5, lines 11-38). Needham additionally discloses the advantages of using a positive photoresist in the present invention as opposed to a negative photoresist (see col. 7, lines 39-62). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement Needham's teachings of forming a filter using a positive photoresist since the negative photoresists are susceptible to problems caused by swelling of the photoresist.

Regarding claim 2, Snow discloses the first color is a primary color (R, G or B), and each of the second and third colors is a complementary color (see examiners notes above).

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Regarding claim 4, Snow discloses, in figures 1 and 2, the color filter is composed of filter elements of a plurality of the first colors each of which is either of red, green and blue colors; and

the filter elements of the plurality of the first colors are produced by the steps of:

forming a yellow filter layer as a filter layer of the second or third color region in which the filter elements of red and green colors as the first colors are to be formed (in figures 1 and 2, the red color filter is formed of yellow and magenta and the green color filter is formed of yellow and cyan);

forming a cyan filter layer as a filter layer of the second or third color in a region in which the filter elements of green and blue colors as the first colors are to be formed (in figures 1 and 2, the green color filter is formed of yellow and cyan and the blue color filter is formed of cyan and magenta); and

forming a magenta filter layer as a filter layer of the second or third colors in a region in which filter elements of red and blue colors as the first colors are to be formed (in figures 1 and 2, the red color filter is formed of yellow and magenta and the blue color filter is formed of cyan and magenta).

Regarding claim 6, see claim 1 above. In addition, regarding the second color layer being both in the same row as the third color layer and the second layer being in a row above the third color layer, the examiner notes that Snow teaches a single row of two colors (yellow and magenta, for example) placed on the substrate. Consequently, since the two color layers form a single row, they both essentially are in the first row and

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the second row. Thus, yellow is in the same row as magenta and in the row above (or below).

Snow discloses, in the background of the invention, that a common approach to forming color filter arrays is to blend a mordant with a negative-working photoresist.

Snow does not expressly disclose filter layers made from a dye containing photoresist.

Needham teaches forming a color filter array on the surface of CCD semiconductor image sensors. Needham further reveals that it is well known in the art to either utilize a negative or positive photoresist for forming a filter on a substrate (see col. 5, lines 11-38). Needham additionally discloses the advantages of using a positive photoresist in the present invention as opposed to a negative photoresist (see col. 7, lines 39-62). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement Needham's teachings of forming a filter using a positive photoresist since the negative photoresists are susceptible to problems caused by swelling of the photoresist.

Regarding claim 7, see claim 2 above.

Regarding claim 9, see claim 4 above where the red color filter is discussed.

Regarding claim 10, see claim 4 above where the green color filter is discussed.

Regarding claim 11, see claim 4 above where the blue color filter is discussed.

Regarding claim 13, see claim 2 above.

Regarding claim 14, see claim 4 above.

Regarding claim 15, see claim 4 above.

Regarding claim 16, see claim 4 above.

Regarding claims 3, 8 and 17, Snow teaches forming a color filter array on the surface of CCD semiconductor image sensors. Snow also discloses, in the background of the invention that a common approach to forming color filter arrays is to blend a mordant with a negative-working photoresist. Snow does not expressly disclose filter layers made from a dye containing positive photoresist.

Needham teaches forming a color filter array on the surface of CCD semiconductor image sensors. Needham further reveals that it is well known in the art to either utilize a negative or positive photoresist for forming a filter on a substrate (see col. 5, lines 11-38). Needham additionally discloses the advantages of using a positive photoresist in the present invention as opposed to a negative photoresist (see col. 7, lines 39-62). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement Needham's teachings of forming a filter using a positive photoresist since the negative photoresists are susceptible to problems caused by swelling of the photoresist.

2. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Snow in view of Needham in further view of Yamada (US5805966) and Ugai et al (EP726503A2).

Regarding claim 5, Snow teaches filters colored with a plurality of dyes which can be mixed or segregated in separate layers. Snow does not expressly disclose the specific dyes as claimed. However, both Yamada and Ugai disclose well-known dyes for cyan, magenta and yellow. Yamada discloses, in col. 9, lines 37-43, that the color toner for magenta may be a magenta dye of xanthene group. Ugai discloses, on page

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9, line 58, that the yellow colorant includes condensed azo compounds, and on page 10, line 8, that the cyan colorant includes copper phthalocyanine compounds. It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement Yamada and Ugai's teachings of well-known dyes for cyan, magenta and yellow since Snow teaches dying filters to produce color images.

(11) Response to Argument

Regarding Applicant's arguments concerning the Snow patent failing to teach the same color layer appearing in both a first and second row, the examiner respectfully disagrees. The examiner notes that Snow teaches a single row of two colors (yellow and magenta, for example) placed on the substrate. The claims do not require that both color filters are in contact with the substrate- only that they are "on" the substrate. Consequently, since the two color layers form a single row, they both essentially are in the first row and the second row. Thus, yellow is in the same row as magenta and in the row above (or below).

Regarding Applicant's arguments concerning the Snow patent failing to disclose filter layers made from a dye containing photoresist, the examiner notes that the secondary reference (Needham) was used specifically for that teaching. And thus, as noted above, because the examiner advised Appellant on how the claims would be addressed for purposes of Appeal, the examiner has replaced the 102 rejection with a 103 rejection.

This is in response to the appeal brief filed October 6, 2003.


For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,


RNT
December 15, 2003

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